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ABSTRACT

Achievement striving is a central dimension of the Type A behavior pattern. To investigate the relationship between Type A behavior pattern, personal performance goals, and goal achievement on two general information tests, 126 undergraduates participated in a two-phase study. First, behavior patterns were assessed using the Framingham Type A Scale and subjects were classified as either Type A, Type X, or Type B. Subjects then completed the two general information tests. Before each test, subjects established a personal performance goal and after each test subjects received feedback on their performance. The results indicated that Type As established higher performance goals on both tests and were less likely to achieve their personal performance goals than Type Xs or Type Bs. Furthermore, the tendency for Type As not to achieve their goals on test one was directly related to a failure to substantially modify their high performance goals on test two. Type Bs, in contrast, showed a significant shift from nonachievement on test one to achievement of personal goals on test two. The results suggest that Type A achievement striving is characterized by repeated failure to achieve personal goals due to a tendency to adopt performance goals which exceed their performance and prior achievement outcomes. (Author/NRB)

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Type A Performance Standards and Goal Achievement

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Abstract

The purpose of the present experiment was to establish a direct link between Type A performance standards and repeated failure to achieve personal performance goals. It was predicted that Type As would be likely to not achieve personally established performance goals as a result of setting high goals and not adequately modifying these goals on the basis of prior achievement outcomes. Subjects classified as Type As, Type Xs, and Type Bs were required to perform two general information tests. Before each test, subjects were asked to establish a personal performance goal and after each test subjects were given feedback on their performance. As predicted, Type As established higher performance goals on both tests and were less likely to achieve their personal performance goals than Type Xs or Type Bs. Furthermore, the tendency for Type As to not achieve their goals was directly related to a failure to substantially modify their high performance goals on test two. Type Bs, on the other hand, showed a significant shift from nonachievement on test one to achievement of personal goals on test two. The results indicate that Type A achievement striving is characterized by repeated failure to achieve personal goals due to a tendency to adopt performance standards in excess of performance and prior achievement outcomes.

Type A Performance Standards and Goal Achievement

Prospective studies have indicated an association between an epidemiological construct known as the Type A behvavior pattern and coronary heart disease i both men and women (Haynes, Feinleib, & Kannel, 1980; Rosenman, Brand, Jenkins, Friedman, Straus, & Wurm, 1975). The relative risk of coronary heart disease associated with the Type A behavior pattern is comparable to and independent of the risk associated with other known risk fac ors (Brand, Rosenman, Sholtz, & Friedman, 1976; The Review Panel on Corona y-prone Behavior, 1981). Establishment of an individual response pattern as a risk factor for the nation's leading cause of death has received considerable attention in the scientific and popular press. In fact, most people interested in health issues have at least a facismile notion of what constitues Type A behavior.

Friedman and Rosenman (1974, p. 67) have described the Type A behavior pattern as an emotional and behavioral manifestation of "a person who is aggressively involved in a chronic, incessant struggle to achieve more and more in less time, and if required to do so, against the opposing efforts of other things or other persons." This definition places achievement striving as a central dimension of the Type A behavior pattern. Some researchers have suggested that characteristics such as hostility, impatience, and accelerated speech and motor behavior are direct behavioral and emotional consequences of an excessive preoccupation with achievement and/or a reaction to thwarted achievement efforts (Carver & Humphries, 1982). In fact, incessant striving to achieve lofty goals, along with aggression and hostility, have long been

associated with coronary heart disease (Osler, 1892, 1896; Von Dusch, 1868, cited by Dembroski, MacDougall, Shields, & Herd, 1983).

Although excessive achievement striving is one of the major components of the Type A behavior pattern, critical issues regarding what constitutes excessive achievement striving and its association with coronary heart disease have not been fully resolved. A major issue is whether Type A achievement striving is adaptive or maladaptive. Friedman & Rosenman's (1974) conceptualization emphasized maladaptive characteristics, such as preoccupation with quantity at the expense of quality. On the other hand, some research suggests the Type A behavior pattern is associated with higher levels of overall achievement (e.g Glass, 1977; Mettlin, 1976; Matthews, Helmreich, Beanne, & Lucker, 1980; Shekelle, Schoenberger, & Stamler, 1976).

In addition, research has shown that the Job Involvement Subscale of the Jenkins Activity Survey measure of Type A behavior is negatively related to coronary heart disease (e.g. Zyzanski, Wrzersniewski, & Jenkins, 1979) and positively related to adaptive coping skills (Vickers, Hervig, Rahe, & Rosenman, 1981); whereas the Hard-Driving and Speed-Impatience Subscales of the Jenkins Activity Survey are postively correlated with coronary heart disease and maladaptive coping skills. These findings are inconsistent with research on the Type A behavior pattern and more consistent with conceptualizations that ambition is a positive, health promoting personal characteristic (Hogan & Schroeder, 1981).

Self-evaluation based on excessively high standards is thought to be inherently related to the chronic struggle for achievement and lack

of satisfaction gained from accomplishments commonly observed in Type A individuals (Friedman & Rosenman, 1974). Research has shown that in performance situations Type As do set higher performance goals than Type Bs (Grimm & Yarnold, 1984; Snow, 1978; Ward & Eisler, 1985). The tendency to set very high and inflexible performance goals has been suggested as the central dimension which defines the maladaptive nature of Type A achievement striving (Grimm & Yarnold, 1984; Price, 1982).

Setting high performance goals, however, is only maladaptive if it results in a failure to achieve performance goals and not if it leads to higher levels of actual performance (see Locke, Shaw, Saari, & Latham, 1981). Friedman and Ulmer (1984) have argued that failure to achieve personal goals is the basis for Type A achievement striving. They suggest that failure to achieve personal goals results in a lowering of self-esteem and that inadequate self-esteem "may in itself be largely response for other aspects of Type A behavior" (Friedman & Ulmer, 1984, p. 33). Yet, little research has addressed this issue of whether Type As are less likely to achieve personal performance goals than Type Bs.

A recent experiment by Ward and Eisler (1985) provides direct support for this maladaptive nature of Type A achievement striving. A critical issue not adequately addressed by previous research is whether the tendency for Type As to not achieve personal goals is a function of the failure to modify personal performance goals on the basis of prior achievment outcomes. Typically, individuals tend to modify future goals in a manner consistent with previous experience (Lewin, Dembo, Festinger, & Sears, 1944). Grimm and Yarnold (1984) found that Type As do not appear to make this adaptive modification in goal-setting behavior; however,

Ward and Eisler (1985) found that Type As do modify their goals in a manner consistent with prior achievement outcomes. It may be the case that even though Type As modify their goals, they still persist in setting goals which exceed performance; thereby, increasing their likelihood of experiencing repeated failure to achieve personal goals. Establishing a direct link between inadequate modification of personal goals and subsequent failure to achieve personal goals would provide evidence for the chronic nature of Type As failing to achieve personal goals. Clearly, repeated failure to achieve personal goals is critical if this dimension is to make a significant contribution to the behavioral and emotional manifestations of the Type A behavior pattern.

The purpose of the present experiment is to investigate the relationship between the Type A behavior pattern, personal performance goals, and goal achievement on two general information tests. It was predicted that Type As would establish higher personal performance goals than Type Bs; yet, perform the same, resulting in a reduced likelihood of achieving personal performance goals. Most importantly, it was predicted that Type As' tendency to not achieve personal goals would be the result of persisting to set goals which exceed performance on test two. Type Bs, on the other hand, should be more likely to achieve their goals on test two as a result of modifying their goals in a manner consistent with achievement outcomes on test one. In this respect, it was predicted that the relationship between Type A performance standards and failure to achieve personal goals would be a chronic, repeating characteristic.

A secondary purpose of this experiment was to examine what information Type As use in generating personal performance goals. Matthews (1982) suggests that Type As lack internal standards for evaluating their performance. Consequently, Type As are reported to be more concerned with external standards and tend to compare themselves with individuals demonstrating excellent performance. Lack of internal standards might also lead to a tendency to base personal goals on external standards of excellent performance. In this respect, Type As should also show a self-expectancy bias in the form of greater pre-performance concern with excellent performance standards compared to Type Bs. Therefore, it was hypothesized that information regarding excellent performance would have a greater impact on Type As as demonstrated by more accurate recognition of this information than Type Bs.

A final purpose of the experiment is to examine a potential methodological limitation of previous research on the Type A behavior pattern and achievement related behavior. To date, all research on performance variables has reported only differences between Type As and Bs, typically only reporting results on extreme scoring individuals. Caffrey (1978, p. 91) has chided this methodology as confounded by the "mystery of the missing middle" which neglects potential interactive effects. The present experiment addresses this problem by employing a three group classification of Type As, Xs, and Bs. This classification system is analoguous to Rosenman's (1978) Type A behavior pattern classification system, although the less exaggerated Type A-1 and Type X groups are combined into a single experimental group. If performance variables are directly related to the severity of Type A behavior, then

a linear relationship should exist between the Type A behavior pattern and the variables of personal performance goals, achievement discrepancy between performance and goals, and failure to achieve personal goals. Such findings would help establish the validity of previous research by ruling out a potential methodlogical confound of selecting only Type As and Type Bs.

Method

Subjects

Subjects were 126 (65 female and 61 male) undergraduate students who received extra credit in an introductory psychology course in exchange for their participation. Subjects' mean age was 18.75 (18.52 for females and 18.98 for males).

Materials

Type A behavior pattern assessment. The Type A behavior pattern was assessed using the Framingham Type A Scale (FTAS; Haynes, Levine, Scotch, Feinleib, & Kannel, 1978). The FTAS is a 10 item self-report questionnaire that has been established as an independent predictor of coronary heart disease (Haynes et al., 1980). The FTAS is thought to tap dimensions of competitiveness, impatience, and a high need for achievement associated with the Type A behavior pattern. Possible scores range from 0 to 1.0.

General information tests. The two general information tests consisted of 30 items each taken from lists of general information questions. Similar questions were asked on each test in an effort to make them equal on difficulty and content of general information sampled. A

check on the equivalence of the two tests revealed no significant differences for subjects' performance on the two versions.

Personal performance goal. Subjects were asked to provide a numerical personal performance goal before each test. These raw scores were used as the personally established performance goals in the data analysis.

Performance standard scale. The performance standard scale consisted of raw score equivalents for excellent, good, marginal, and poor performance with seperate population categories of doctoral students, college seniors, and honor level high school students. A total of 12 scores were given. The purpose of providing performance standard scores for different populations was to minimize possible ceiling effects in recognition and to maximize reliability.

Recognition test. The recognition test consisted of a total of 12 questions asking the subject to correctly identify excellent, good, marginal, and poor raw scores listed in the performance standard scale for each category of doctoral, undergraduate seniors, and honor high school students. For each question, subjects were given four successive integers from which to chose the correct raw score.

Procedure

The experiment consisted of two phases. The first phase involved completing the FTAS as part of a large test battery. Thus, the FTAS was not directly associated with the experiment. In the second phase all subjects were run as a group in a large lecture room. This phase of the experiment was introduced as a preliminary development and validation of a simple and easily scored intelligence test based on knowledge of general

information. Subjects were told they were about to complete two very similar general information tests currently under development for final item selection. They were also told that general information has been found to be a good predictor of overall intelligence and success in academic pursuits.

While introducing the general information test, subjects were presented the performance standard scale. The performance standard scale was removed approximately three minutes before the end of the introduction. After the introduction, subjects were asked to provide a personal performance goal. The personal performance goal was elicited by asking the subjects to indicate how well they felt they should do on the subsequent general information test. Next they were allowed to start on the test and were given 5 minutes to complete the first general information test.

At the end of 5 minutes, answers were corrected and subjects received feedback on their performance. Similar procedures for test one were followed for test two. This consisted of obtaining an personal performance standard estimation, allowing 5 minutes to complete the test, and provision of feedback on their performance. Finally, subjects were given the multiple choice recognition task.

Results

Type A behavior pattern assessment

The mean score on the FTAS was .453 with a standard deviation of .204. For the purpose of data analysis, subjects were classified into three categories of Type A, Type X, and Type B. The Type A group (n=30, females=14, males=16) consisted of those individuals scoring .7 to 1.0

on the FTAS. The Type X group (n=59, females=32, males=27) consisted of those individuals scoring .4 to .6 on the FTAS. The Type B group (n=37, females=19, males=18) consisted of individuals scoring 0 to .3 on the FTAS.

Performance Variables Analysis

In terms of the present experiment the primary focus is on the relationship between the Type A behavior pattern, actual performance, personally established goals, and achievement discrepancy between acutal performance and performance goals. The relationship between the Type A behavior pattern and these performance variables is summarized in Table 1.

Insert Table 1 about here

Differences between males and females are not detailed in Table 1, because sex differences were unrelated to the Type A behavior pattern and as such are not the primary focus of the present experiment, but will be reported below.

Performance Analysis. Seperate performance scores were calculated by summing the number of correct answers for each test. As shown in Table 1, Type groups performed about equally as well. Most relevant to the present experiment is the finding that neither the main effect of Type, nor the Sex by Type interaction was significant on either test one or test two. Thus, the Type A behavior pattern was unrelated to actual performance.

Not shown in Table 1, however, is the fact that males outperformed females on both task one and two. A Sex by Type ANOVA showed a significant main effect of Sex on both test one, $F(1,120)=33.36$, $p<.001$, and test two, $F(1,120)=18.97$, $p<.001$. The finding that males significantly outperformed females was unexpected; however, in the context of this experiment it is impossible to determine whether this finding represents gender differences in terms of breadth of general information or alternative explanations.

Personal performance goal analysis. As can be seen in Table 1, overall Type As set higher performance goals for themselves than Type Xs or Type Bs. It was also found that males set higher performance goals than females. A Sex by Type ANOVA revealed significant main effects for sex on both test one, $F(1,120)=8.0$, $p<.01$, and test two, $F(1,120)=42.26$, $p<.001$. Again, interpretation of this finding of sex differences should be tempered by the confound that males out performed females on both test one and two. Consequently, it should be expected that males would set higher goals, especially on test two. Conceptually more important is the finding that the Sex by Type interaction was not significant. This suggests a lack of a sex difference in relation to the Type A behavior pattern on personally established performance goals.

Significant main effects of Type on personally established performance goals were also found for test one, $F(2,120)=5.72$, $p<.01$, and test two, $F(2,120)=3.15$, $p<.05$. In order to better understand the differences between Type groups on personally established goals, three planned contrasts were conducted. The contrasts compared Type As with Type Xs, Type As with Type Bs, and Type Xs with Type Bs. The results show

that Type As set significantly higher performance goals on test one than either Type Xs (t=3.08, df=123, $p<.01$) or Type Bs (t=3.11, df=123, $p<.01$), but that Type Xs did not set significantly higher goals than Type Bs.

Nearly identical results were found on test two. Type As set significantly higher performance goals than Type Bs (t=1.99, df=123, $p<.05$) and Type Xs (t=2.42, df=123, $p<.025$), while no significant difference was found between Type Xs and Type Bs on performance goals for test two. A trend analysis showed that personal performance goals increased in a significant linear fashion with an increase in the Type A behavior pattern on both test one, $F(1,123)=9.48$, $p<.01$, and test two $F(1,123)=3.96$, $p<.05$). The deviation from linearity was not significant on either test one or two. These results support the notion that setting high personal performance goals is directly related to the Type A behavior pattern. These results are also consistent with previous research suggesting that Type As tend to persist in setting high goals on subsequent tasks.

Achievement discrepancy. The degree of achievement discrepancy was calculated by substracting actual perfomance on each general information test from the personally established goal for that particular test. The resultant achievement discrepancy value yields a measure of how difficult to achieve the goal was for the individual. On test one, a significant main effect of Sex was found, $F(1,120)=16.22$, $p<.001$. The Sex by Type interaction and the main effect of Type were not significant. On test 2, however, a significant main effect of Type was found, $F(2,120)=8.56$, $p<.001$, but neither the main effect of Sex or the Sex by Type interaction was significant. The planned contrasts showed that Type As obtained

significantly larger achievement discrepanies than both Type Xs (t=2.47, df=123, p<.025) and Type Bs (t=418, df=123, p<.001. It was also found that Type Xs had significantly larger achievement discrepanies than Type Bs (t=2.26, df=123, p<.025). A trend analysis showed that on test 2, achievement discrepany was significantly related to the Type A behavior pattern in a positive linear fashion, $F(1,123)=17.48$, p<.001. The deviation from linearity was not significant.

These results show that when given the opportunity, females and Type Bs appear to have made substantial adjustments in their personal performance goals according to their achievement outcome on test 1. On the other hand, Type As persisted in setting goals that were in excess of performance despite feedback regarding achievement outcomes of test one. This resulted in a significant difference in achievement discrepancies between Type As and both Type Xs and Type Bs on test two. The findings support the hypothesis that Type A achievement striving represents a tendency to persist in setting goals which exceed performance.

Achievement of Personally Estabished Goals

Achievement of personally established goals was calculated by summing the number of times an individual achieved thier personal goals on the two general information tests. Thus, possible scores range from 0 (nonachievement on either test) to 2 (achievement on both tests). The relationship between the Type A behavior pattern and achievement of personally established goals is shown in Figure 1.

Insert Figure 1 about here

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to achievement revealed that Type Bs were the only group to demonstrate a significant shift from nonachievement on test 1 to achievment on test 2 (χ^2=6.37, df=1, p<.025). These results clearly demonstrate that Type A achievement striving is characterized by a repeated failure to achieve personally established goals as a result of setting high personal performance goals and not adequately modifying these goals on the basis of prior achievement outcomes.

Recognition of Performance Standards

Recognition scores for each category of excellent, good, marginal, and poor performance was summed across the population categories. Thus, each subject could obtain a maximim of 3 for a recognition score in each of the four categories. This summed score was used in the data analysis of recognition results. Recognition data is summarized in Table 2.

Insert Table 2 about here

As shown in Table 2, scores representing excellent performance standards were most accurately recognized by Type As and least accurately recognized by Type Bs. A Sex by Type ANOVA confirmed a significant main effect of Type, $F(2,120)=6.13$, $p<.01$. Neither the main effect of Sex or the Sex by Type interaction was significant. Planned comparisons revealed that Type As more accurately recognized excellent performance standards than Type Bs ($t=3.47$, df=123, $p<.001$) and that Type Xs were more accurate in recognition of excellent standards scores than Type Bs ($t=2.35$, df=123, $p<.025$), but there was no significant difference between Type As and Xs on recognition of scores representing excellent performance. A trend

analysis showed a significant linear relationship between recognition accuracy and severity of the Type A behavior pattern, $F(1,123)=12.29$, $p<.001$. These results suggest that Type As are more likely than Type Bs to be concerned with and probably more likely to utilize information regarding excellent performance in establishing a self-expectancy for their performance. This concern with performance standards, however, appears to be limited to information regarding excellent performance, since no significant results were found for recognition of scores representing good, marginal, and poor performance.

Discussion

The results of the experiment are clearly supportive of the hypothesis that Type A achievement striving is characterized by a failure to achieve personal goals due to the tendency to establish goals which are in excess of their performance ability. Also, strong support was provided for the hypothesis that Type As are likely to experience repeated failure in achieving personal goals because they persist in setting goals in excess of performance and prior achievement outcomes. Type Bs, on the other hand, are more likely to experience achievement of personal goals on a second performance test as a result of setting goals consistent with prior achievement outcomes. In addition to establishing high personal performance goals, Type As have also been found to select tasks with a higher level of difficulty than Type Bs (Ortega & Pipal, 1984). By maintaining rigid performance standards, Type As might also self-engender even greater levels of challenge by choosing difficult tasks and, thereby, increasing the probability of not achieving their high personal goals. Thus, Type A achievement striving appears to be characterized by a chronic

tendency to not achieve personal goals, primarily due to excessive high and inflexible performance standards.

The fact that Type As adopt excessively high performance standards in forming an achievement self-expectancy is supported by the finding that Type As showed greater recognition of information constituting excellent performance than Type Bs; yet, no differences between Type As and Bs were found on recognition of good, mariginal, or poor performance information. Since the recognition task was not presented until completion of both general information tests, it may the case that greater recognition of excellent performance information also reflects a self-evaluation process. In this respect, Type As might have engaged in a selective, covert self-retrieval process of excellent performance information when they received feedback on their performance before the recognition task. Consequently, it is not possible to isolate this finding in terms of self-expectancy or self-evaluation processes; however, in either case the results are supportive of a conceptualization that excessively high performance standards are associated with the Type A behavior pattern.

The present experiment also extends previous research in another important aspect. Previous research on performance variables and the Type A behavior pattern have exclusively used the Jenkins Activity Survey for assessment of Type A behavior. Research has shown only modest correlations among Type A behavior pattern assessment procedures (e.g. Matthews, Krantz, Dembroski, & MacDougall, 1982; Musante, MacDougall, Dembroski, & Van Horn, 1983; Vickers et al., 1981). Furthermore, research has shown that different assessment procedures can yield inconsistent results on the same dependent variables (e.g. Musante, MacDougall, &

Dembroski, 1984; for a recent review of differences on psychophysioligical variables see Contrada, Wright, & Glass, 1985). For this reason, the FTAS was employed to determine if consistent results on performance variables are found across different self-report assessment procedures. The results of the present experiment are very similar to results obtained by Ward and Eisler (1985), which employed nearly identical procedures except for using the Jenkins Activity Survey for Type A behavior pattern assessment. Thus, the relationship between high performance standards and failure to achieve personal goals appears to be a reliable and valid Type A characteristic.

Methodologically, the findings that personal performance goals, achievement discrepancies, and failure to achieve personal goals are linearly related to the Type A behavior pattern also helps establish the validity of previous research which has only compared Type As and Bs on performance variables. Individuals scoring at the middle of the Type A behavior pattern distribution appear to approach achievement situations in a manner expected of an individual possessing approximately equal Type A and B characteristics or a less exaggerated, overt Type A (see Rosenman, 1978). Equally as important, the present study suggests that more extreme Type As will be least likely to achieve their personal goals and more likely to experience potential adverse physiological and psychological responses.

Future research is necessary to establish exactly what adverse physiological and psychological consequences are associated with repeated failure to achieve personal goals. One possibility is that by chronically attempting to achieve excessively high goals, Type As may expose

themselves to deleterious health consequences via excessive cardiovascular responding. Consistent with this notion is research suggesting that Type As demonstrate increased cardiovascular reactivity compared to Type Bs only under performance situations with a high challenge level (Holmes, McGilley, & Houston, 1984). Glass (1977) has proposed that this heightened physiological reactivity is part of an overall Type A style of responding in an effort to avoid anxiety from the threat of failure to establish competence. When confronted with repeated failure, however, Type As appear to give up and show a helpless style of responding (Glass, 1977; Brunson & Matthews, 1981). According to Glass, this coping style may contribute to the pathophysiology of coronary heart disease through large fluctuations in sympathetic nervous system activity. Results of the present experiment are consistent with this conceptual framework in that it provides a basis for understanding how Type As might bring about situations characterized by repeated failure.

Failure to achieve personal goals has also been suggested to have adverse psychological consequences, especially a decreased sense of self-efficacy (Bandura, 1977). Although inadequate self-esteem has not been emprically established as a central Type A characteristic, Friedman and Ulmer (1984) have focused on covert insecurity as a underlying dimension which leads to the development of other facets of the Type A behavior pattern. Setting unrealistically high performance goals may be one way in which Type As attempt to establish or re-establish a sense of self-worth (Price, 1982). Unfortunately, the end result of this attempt is likely to be repeated personal failure and further reductions in self-esteem. In this sense, Type A achievement striving may represent a

breakdown in self-regulation (Grimm & Yarnold, 1984; Price, 1982). Matthews and her associates (see Matthews, 1977; Matthews, 1982; Matthews, 1983) present evidence that Type A children are more likely to be encouraged to achieve goals in excess of their performance by both caretakers and female strangers, while Type Bs tend to be reinforced for their actual performance level. This breakdown in self-regulation in achievement situations may begin early in life, which is exaccerbated by feelings of inadequacy and anxiety. Characteristics of Type A achievement striving identified in the present study appear to provide a basis for disentangling adaptive and maladaptive characteristics of ambition necessary in refining conceptualizations of the achievement striving component of the Type A behavior pattern.

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Table 1

Means for Type A, Type X, and Type B subjects on personally established performance goals, actual performance, and achievement dicrepancy on the two general information tests.

	Test 1			Test 2		
	Goals	Performance	Discrepancy	Goals	Performance	Discrepancy
Type As	20.93^{ab}	18.47	1.93	19.43^{ab}	17.27	2.17^{a}
Type Xs	18.68^{a}	17.66	1.02	17.15^{a}	16.61	$.58^{a}$
Type Bs	18.49^{b}	17.70	1.00	17.38^{b}	17.54	$-.78^{a}$

Note: Means in each column with the same subscript are significantly different.

Table 2

Mean recognition scores for Type A, X, and B subjects of performance standard scores representing excellent, good, marginal, and poor performance summed across population categories of doctoral, college seniors, and high school honor students.

	Excellent	Good	Marginal	Poor
Type As	2.57[a]	2.07	1.00	1.33
Type Xs	2.27[b]	1.85	.93	1.66
Type Bs	1.86[ab]	1.81	.95	1.65

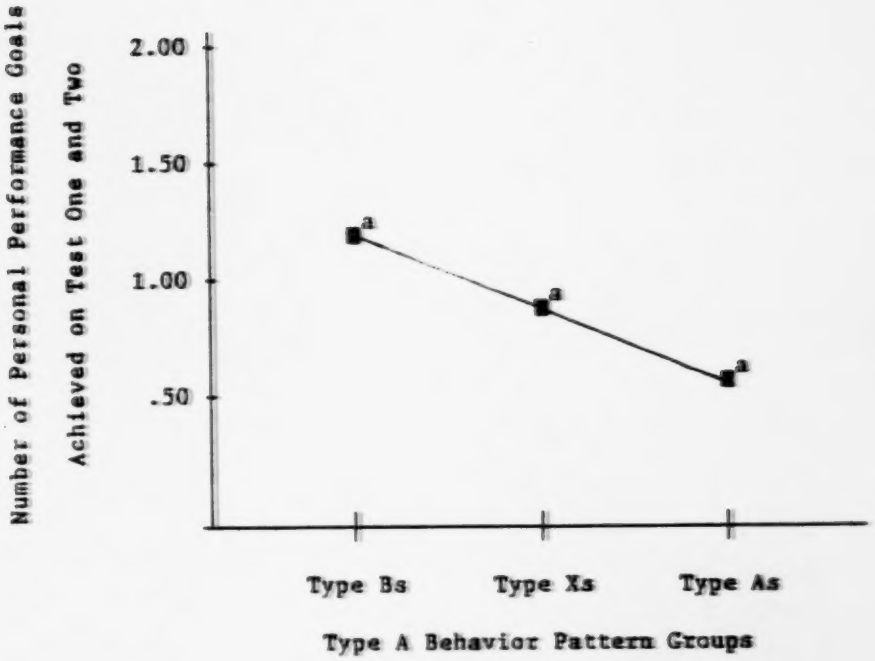
Note: Means in each column with the same subscript are significantly different.

Figure Captions

Figure 1. Mean number of personally established performance goals achieved on the two general information test by Type B, X, and A subjects.

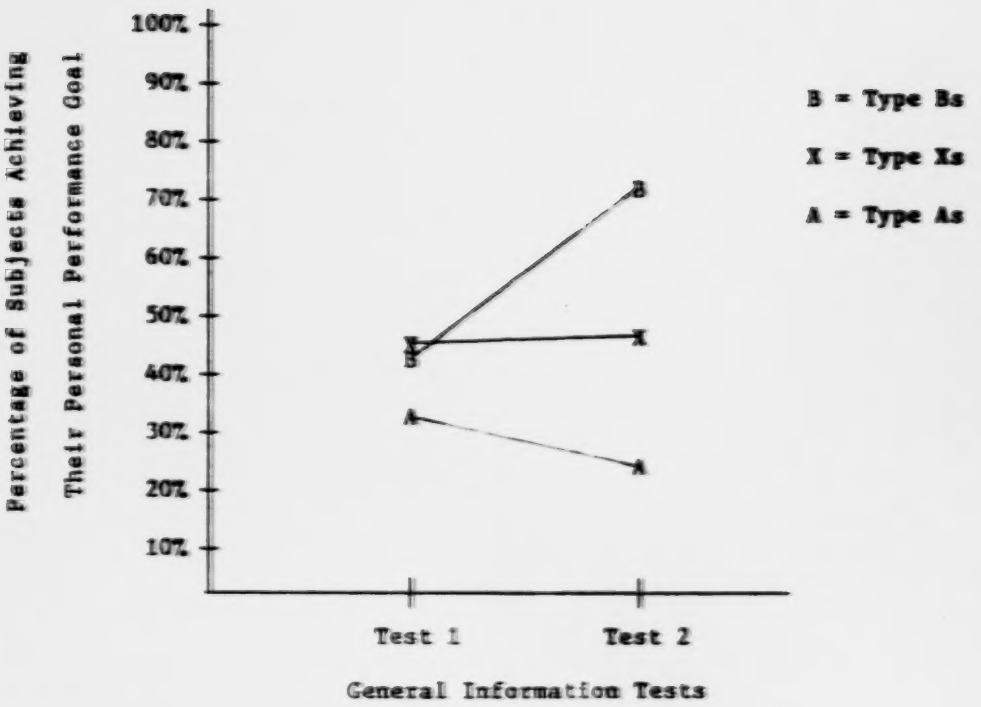
Figure 2. Percentage of subjects to achieve their personally established performance goals by Type A behavior pattern group classification across test one and two.

Figure 1



Note: Means with the same subscript are significantly different

Figure 2



Note: Type Bs are significantly different from test 1 to test 2 on percentage of subjects achieving their personal goals.